

PATENTS
112055-0043
17732-36750.00

IN THE CLAIMS:

1 (currently amended) A process to enable the control of photolithographic feature size on structures having one or more severe non-flat topologies for the purpose of performing successful photolithography thereon using photolithographic equipment defining a wavelength source, a numeric aperture, photoresist, and conformal deposition or depositions, the process comprising the steps of:

first determining a depth of focus from at least the wavelength of the source and the numeric aperture of the photolithographic equipment;

second determining a thickness of the photoresist being used;

third determining characteristics of the conformal deposition being used;

evaluating from the above first, second, and third determinations one or more acceptable layout dimensions of the one or more severe non-flat topologies for satisfactory photolithographic processing;

forming a severe non-flat topology wherein the layout dimensions are changed, if necessary, to comply with the one or more acceptable layout dimensions, one or more acceptable layout dimensions of the one or more severe non-flat topologies as a function of photolithographic equipment and photoresist thickness employed and conformal depositions;

~~forming the one or more severe non-flat topologies with said one or more acceptable layout dimensions; and~~

~~substantially reducing the severity of the formed one or more severe non-flat topologies.~~

- 1 2.(currently amended) The process as claimed in Claim 1 wherein the step of determining
- 2 evaluating said one or more layout dimensions of the one or more severe non-flat topolo-

PATENTS
112055-0043
17732-36750.00

gies includes comparing of the depth-of-focus of the particular photolithographic equipment and the thickness of a photoresist film applied to the surface of the structure against the severity of the non-flat topologies.

3. (currently amended) The process as claimed in **Claim 1** wherein ~~the a~~ structure having a severe non-flat topology is a semiconductor structure and the step of forming the one or more severe non-flat topologies includes etching the semiconductor structure.

4. (currently amended) The process as claimed in **Claim 1** wherein the step of ~~substantially reducing the severity of the formed one or more~~ forming a severe non-flat topologies includes the step of applying a conformal layer of material on a structure having a severe non-flat topology ~~the structure~~ including over the area of the formed one or more severe non-flat topologies.

5. (currently amended) The process as claimed in **Claim 4** wherein the step of applying said conformal layer of material includes applying a plurality of layers of conformal material on the structure having a severe non-flat topology including over the area of the formed one or more severe non-flat topologies.

6. (original) The process as claimed in **Claim 5** wherein one or more of said plurality of layers of conformal material is polysilicon.

7. (original) The process as claimed in **Claim 6** wherein one of said plurality of layers of conformal material is an insulative material.

8. (original) The process as claimed in **Claim 5** wherein said one or more of plurality of layers are applied in a blanket deposition.

PATENTS
112055-0043
17732-36750.00

1 9. (currently amended)The process as claimed in **Claim 4** further comprising the step of
2 applying a layer of photoresist material over said conformal layer. ~~one or more severe~~
3 ~~non-flat topologies after said filing in step.~~

1 10. (original)A structure having a surface for receiving a photoresist film suitable for ex-
2 posure by photolithographic equipment, the structure comprising: one or more severe
3 non-flat topologies, wherein each of said one or more severe non-flat topologies is
4 formed with layout dimensions determined as a function of operational characteristics of
5 the photolithographic equipment, photoresist thickness, and conformal depositions, and a
6 filler to substantially fill in said one or more severe non-flat topologies.

1 11. (original)The structure as claimed in **Claim 10** wherein the determination of said lay-
2 out dimensions is made based upon comparing the depth-of-focus of the particular pho-
3 tolithographic equipment and the thickness of a photoresist film applied to the surface of
4 the structure against the severity of the non-flat topologies.

1 12. (original)The structure as claimed in **Claim 10** wherein said one or more severe non-
2 flat topologies are etched topologies.

1 13. (original)The structure as claimed in **Claim 10** wherein the structure is a semicon-
2 ductor structure and said filler is formed of a conformal layer of material on the semicon-
3 ductor structure including over the area of the one or more severe non-flat topologies.

1 14. (original)The structure as claimed in **Claim 13** wherein said conformal layer includes
2 a plurality of layers of conformal material.

1 15. (original)The structure as claimed in **Claim 14** wherein one or more of said plurality
2 of layers of conformal material is polysilicon.

PATENTS
112055-0043
17732-36750.00

1 16. (original)The structure as claimed in Claim 15 wherein one of said plurality of layers
2 of conformal material is an insulative material or a conductive material.

1 17. (original)The structure as claimed in Claim 14 wherein one or more of said plurality
2 of layers is applied in a blanket deposition.

1 18. (currently amended)A micro-electro mechanical system including a structure having a
2 surface for receiving a photoresist film suitable for exposure by photolithographic
3 equipment, the ~~device~~ micro-electro mechanical system comprising: one or more severe
4 non-flat topologies, wherein each of said one or more severe non-flat topologies is
5 formed with layout dimensions changed, if necessary, as determined as a function of op-
6 erational characteristics of the photolithographic equipment, photoresist thickness, and
7 conformal depositions, and a filler to substantially fill in said one or more severe non-flat
8 topologies.

1 19. (original)The device as claimed in Claim 18 wherein said structure forms a portion of
2 a mirror system.

1 20. (original)The device as claimed in Claim 18 wherein said structure forms a portion of
2 a pump system.

1 21. (original)The device as claimed in Claim 18 wherein said structure forms a portion of
2 a pressure sensor system.

1 22. (original)The device as claimed in Claim 18 wherein said structure forms a portion of
2 a chemical sensor system.

1 23. (original)The device as claimed in Claim 18 wherein said structure forms a portion of
2 an accelerometer system.

PATENTS
112055-0043
17732-36750.00

- 1 24. (currently amended) The device as claimed in **Claim 18** wherein said structure forms
- 2 a portion of a micro sized medical implement sensor system.